The Application of Big Data Technology in Third-Party Payment and Its Risk Analysis

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Abstract: The application of big data technology has become a new driving force for the growth of third-party payment business, and at the same time, there are many risks to third-party payment business. Based on the analysis of the relationship between big data and third-party payment, this paper discusses the concrete application of big data technology in the field of third-party payment, and probes into the risks of third-party payment under big data technology. On this basis, the prevention and control of the third party payment data technology operation risk is discussed.

1. Preface

With the popularization of electronic commerce and the development of Internet technology, traditional financial business and Internet technology permeate each other, forming a new field-Internet finance. Among them, third-party payment has become one of the "sources" of Internet finance by its own innovative payment tools, massive transaction information and cross-industry and cross-market management. The most important feature of third-party payment is the ability to connect the seller with the buyer through the program and then use the third-party payment platform as the medium for payment. This third-party payment method has epoch-making significance. Trading money around the world through Internet technology, this is the meaning of the existence of third party payment. Under the "Internet" program, the development of cloud computing, big data, and e-commerce will bring about a change in payment methods for the third party payment industry. If big data and cloud computing are the technological "source" to promote the development of Internet finance, then third-party payment is already at the core of the Internet financial form and has become one of the "headwaters" of the development of Internet finance. Under the background of big data era, it is more important for third-party payment enterprises to mine and apply massive transaction data, such as users, merchants and terminals, which are naturally owned by third-party payment enterprises. Thus, the value-added services such as Internet marketing, credit information and so on will become more and more important.For the profit breakthrough.

At present, the third party payment in China is developing rapidly and the business field is expanding, from consumer payment to life payment, credit card payment, air travel, education payment, fund insurance, digital entertainment, medical treatment, logistics, etc. With the rapid development of Internet finance, there are two innovations in third-party payment in China: one is the innovation of third-party payment tools, such as QR code payment, WeChat Pay, Alipay, Yibao, Wealth Link, And the development and promotion of digital money; Second, payment mode innovation, relying on scientific and technological means and the rapid development of big data finance, P2P network lending, crowdfunding, a total ofEnjoy payment and other new payment mode also with the trend of rapid development. Moreover, China has a large number of third-party payment users and a steady increase in the size of payment transactions. China Mobile has 562 million subscribers in 2017, and the total volume of third-party payments in China reached 102 trillion yuan in 2017, an increase of 74 percent over the same period last year. By the end of 2018,

Alipay was the largest third-party payment market in China at 49 percent, Tenpay ranked second with 40 percent, with the two payment giants accounting for 89 percent of the market.

2. Big data and the related Summary of Third-party payment

2.1 The concept of big data and third party payments

Big data is a relatively broad concept, there is no uniform definition. Put simply, big data is a combination of a lot of data. Around 2000 years ago, the concept of "big data" began to appear and develop. In 2011, McKinsey & Company, an American financial scholar, put forward: "big data technology is a new era of technology and system, designed to extract the value of data from large-scale diversified data through high-speed capture, discovery and analysis techniques." Compared with traditional data, big data's characteristics can be summed up as 5V, that is, Volume, Velocity, Variety, Veracity, Val.Ue.Volume is a very large amount of data, Velocity is a fast data growth, fast processing speed, high timeliness; Variety is a variety of data sources and types, including structured, semi-structured and unstructured data, web logs, audio, video, pictures, geographical information and so on. Veracity refers to the accuracy and reliability of the data, that is, the quality of the data; Value is the data value density is relatively low.

With the popularity of the Internet and the emergence of all kinds of online shopping malls, tens of thousands of information have emerged, but low value density has become an urgent problem, so how to filter through, the operation to excavate the data value is big data time must seriously ponder the center of gravity. Big data's value is mainly reflected in how much of the original realization of the research object has been improved through the analysis of the data. The rapid development of big data's technology and application promotes the development of the world economy. However, big data has brought many opportunities for economic and social development, but also brought some potential dangers. People must treat large numbers reasonably.According to the impact and challenge.

With the popularization of information technology and the rapid development of Internet finance, third-party payment emerged as the times require, and showed a rapid development momentum. Third-party payment originated from the independent sales organization system (ISO). In the United States in 1980s. E-commerce has developed rapidly in western countries, and the huge payment demand has provided great impetus for the development of third-party payment. In the late 1990s, a new third-party payment system emerged as the times require. At present, under the background of the Internet financial boom, third-party payment services constantly affect people's daily life, and profoundly change people's consumption patterns and habits. WithWith the rise of the "Internet + Finance" and the development of the e-commerce market, not only the application of the third-party payment has been brought forward, but also a large number of new payment enterprises, new payment tools and payment methods have been created, and a series of problems and risks are emerging.

2.2 Relationship between big data and third party payments

(1)Big data and third-party payment are mutually reinforcing and common development. With the continuous innovation and wide application of large-scale data technology, many financial enterprises have long been successful in the application of large-scale data. According to the current global survey, China has more than 900 million UnionPay cardholders and more than 10 million merchants in the banking industry, leading to the world's first trading volume per day. In the process of the development of big data and mobile interconnection technology, many data analysis plays an important role in the development of service-related enterprises. A more intelligent business decision based on the business analysis of big data is very importantThe development of multi-enterprise has played an important role in making the enterprise more rational in the development of strategy, and can realize forward-looking decision-making. Now, the third-party payment and the big data have been developed, and the third-party payment has been widely spread and promoted under the background of big data, and has a far-reaching impact on the social economy and the life. It can be

said that big data and third-party payment are mutually reinforcing and common development. (2)Big data technology will become a third-party payment business growth new power. The follow-up development of third-party payment industry and big data will be inextricably linked. The next business growth power of third-party payment will be mining secondary mining and precision marketing derived from big data. Risk control is the core of finance, and breaking information asymmetry is the core of risk control. By collecting and analyzing big data, we can help the third-party payment platform to understand the consumption habits and potential needs of users more accurately, so as to scientifically launch more personalized services and achieve accurate marketing. This will accelerate the upgrading of financial services.

3. The main Application of big data Technology in the Field of third Party payment

3.1 Panoramic graphics

Panoramic graphics is widely used, among which the application technology of customer portrait is its typical representative, the personal portrait of the customer includes two parts: the basic characteristics of the individual and the individual characteristic, and the personal interest and hobby. Consumption level can be analyzed through these characteristics. The bank has a large number of users of the information is not comprehensive, their desired results are difficult to get through the bank's own data, and through the analysis of external data applications can achieve the further development of information as a whole. The relationship between things can be expressed by the structure of the figure itself, such as Weibo, Renren and other social platforms, through the establishment of a large number ofOnline social network relationship for users to provide personalized online services.

3.2 Optimization of customer service

According to big data's analysis, the proportion of male and female consumers can be analyzed by classifying the consumption amount. By classifying the consumption regions, we can rank and compare the cities according to the consumption amount, and analyze the consumption characteristics of different regions. Through the classification of consumer groups, we can classify the consumer groups of different age groups, and compare and analyze their personality characteristics, payment methods and risk preference and so on. To investigate and study the financial data of customers, analyze the characteristics and potential value of customers' needs, and finally achieve accurate marketing.

3.3 Application of credit data

Taking the current Tencent Tenpay and Taobao as examples, these third-party payment platforms have all opened credit payment functions, which are analyzed by the payment platform by authenticating users and personal consumption credit data through real names. A certain credit line is granted to the user for consumption in advance, without the need for the user to bind the bank card in advance or log on to the net silver; In addition, according to the credit data can automatically set the interest-free period and maximum repayment date. Using third-party payment big data to establish credit data from various Internet payment platforms, different from the traditional central bank credit reporting. At the same time, big data credit system construction in turn service in payment.

3.4 Application of information security

With the rapid development of third-party payment in recent years, network fraud, payment traps have followed and become more and more, third-party payment big data 2016 annual report shows that one-eighth of consumers have experienced network fraud. And small fraud dominates the mainstream. Big data can not only detect fraud in the course of trading, but also play an important role in risk control. In the process of preventing and controlling the transaction fraud, we can comprehensively use all kinds of intelligent data according to the information of the specific cardholder, the transaction history record and so on, to carry on the real time transaction anti-fraud

research. By fully mining the relevant data and information of the enterprise, KimThe relevant financial institutions can carry out appropriate loan risk analysis, can better grasp the credit line of the enterprise, and accelerate the loan efficiency of the enterprise.

4. Risk Analysis of third Party payment under big data Technology

Because third-party payment is the combination of payment service and information technology, the effect of intermediary service quasi-bank is very obvious. Third-party payment is affected by the risk factors of traditional finance, while big data's technical characteristics based on internet enlarge this kind of risk.

4.1 The "management risk" of third party payment for large data is becoming increasingly prominent

With the penetration of third-party payment into various fields, it has mastered a large amount of real transaction data. Big data, while helping third parties to pay for the basic financial services of Internet finance, has also formed a huge "management risk". (1) Technological risks. This kind of technical risk is the endogenous risk of Internet finance. Third party payments based on the Internet use virtual accounts and payment instructions to implement transfer payments. This mode of operation may be caused by malicious attacks on the system, or by hackers themselves. Account password stolen, or payment enterprise network, computer malfunction, etc.As a result, consumer payment business information lost, leaked or caused property losses. (2) The collection of large amounts of data is easier to be the target of malicious attack by hackers or viruses, which naturally increases the difficulty of third-party payment data management. Third party payment enterprises based on Internet still have a certain gap with traditional banks in the concept of daily security management and system security level, which can easily lead to the tampering of transaction information. The risk of funds being cheated or accounts stolen. (3) Until now, there is still no clear definition of the ownership and use rights of some sensitive data. Many analyses based on big data may involve the violation of personal privacy, which is not yet possible.To come will be a huge hidden danger. As a result, third-party payments involving big data, if mismanaged, may bring unexpected risks and unintended consequences.

4.2 Technical operating mechanism of big data is not perfect

(1) The third party payment big data system and standard are not unified. Each third party payment organization in China, represented by Alipay, Tenpay and Quick money, has its own set of big data system, but the technical standard, data standard and interface standard are not unified. Therefore, it is difficult to realize the integration of payment big data technology and the sustainable development of payment big data technology. (2) The repeated construction of the third party payment big data is not conducive to the network interconnection and information exchange of various payment platforms. Unable to share effectively. In addition to the reasons for the lack of uniform standards mentioned above, payment institutions are bound to protect their commercial interests for the sake of their own needs.This will lead to data resources from everyone, which leads to a large number of data platforms, repeated construction, resulting in the waste of data resources, unable to maximize the use of value. (3) Personal payment account data management defects. The younger generation basically have Alipay, Tenpay and other financial accounts, through their wealth warehouse, this kind of property data is sometimes only known to them. And network form exists money, probably because head of household happens accident and be forgotten. As a result, personal payment account data management deficiencies are increasingly prominent.

4.3 Third party payment big data has security risks

At present, China still lacks effective quality control system of big data. This also means that the collection, utilization and disclosure of data are not clearly defined. In recent years, payment security issues have gradually increased. From the security events such as the suspension of QR code

payment, the leakage of sensitive data from e-commerce transactions and the theft of sensitive information by malicious programs, we can find that many problems are caused by the disclosure of customer information. At present, a lot of grey industry chain of selling customer information appears in the market, and the data sources include illegal sale of enterprises, direct access to the vulnerability of mobile phone payment software and so on. Thus, third party paymentsBig data has security risks.

5. Operation risk Prevention and Control Strategy of data Technology in China University of third Party payment

5.1 Establishment of unified standards for big data's construction and improvement of legal protection of network information

First, a unified large-scale data-building standard should be established, and a complete operating mechanism should be set up to make third-party payment of large-scale data construction in an orderly way. The top-level design should be made to perfect the legal system, so as to promote the formal and orderly development of the third-party payment. In order to realize the network interconnection and resource sharing of each payment platform and lay the foundation for data security, the data construction standard should be unified, and the data boundary and data acquisition authority should be unified. Secondly, it is the legal system to perfect the network information protection. By introducing the relevant laws and regulations and the judicial interpretation, the big data is used as the key guarantee object, and the data ownership, the data access control rule and the data are delivered.The problems such as easy and transfer are further refined and clarified, and the behaviors of improper disclosure, transfer and sale of client information data shall be severely punished.

5.2 Build a multi-tier data sharing platform to reduce data security risks

In order to solve the problems of data independence, data construction and storage of third-party payment organizations, we should take the lead of the national ministries with strong credibility and integrate the data on the basis of the database construction of the third-party payment platform. Build a multi-level big data sharing platform, realize all levels of payment big data sharing, reduce the risk of data security, and maximize the use of resources. The multi-level big data sharing platform should be built into a stable pyramid structure, and the lowest level is the account and transaction information of the most private third-party payment organizations, which has the lowest degree of sharing and the highest degree of security protection. And the third party payment institutionsAfter statistical analysis, the valuable integrated data predicted by the model should be the top-level big data platform data, which has the characteristics of the largest coverage, the most representative, the most open and the highest degree of sharing.

5.3 Improve the quality of professional management team and strengthen the quality of internal data supervision

First of all, big data technology covers database management, data mining, data analysis, data architecture and many other specialties. Therefore, the third party payment platform should rely on professional engineers to complete the construction work of big data in all aspects. Training a group of skilled, good at supervision, dare to command big data to build professional talent team has become inevitable? The third party pays big data the value density is low, must carry on the deep mining by the professional personnel, extracts the value data, and firmly controls the payment big data's quality level. Secondly, the payment enterprise must establish the correct information security management idea in the thought, clearly and properly protects the customer information and the maintenanceThe security of the platform is the responsibility of the payment enterprise, the enterprise should make the management measures according to the standard of the financial institution, keep the customer's identity and transaction information, prevent the customer information from missing, damage and divulge. Enterprises should establish security procedures

including risk monitoring and early warning analysis, system backup and recovery and emergency measures to carry out platform system operation and maintenance; Finally, a group of professional data supervisors should be trained to monitor the quality, process and safety risk of third party payment big data. Regulators should also use big data technology to conduct real-time supervision and analysis of these enterprises so as to find potential problems in a timely and effective manner.

5.4 Build a diversified global risk network, and provide perfect anti-fraud service for users

From the multi-source and high-value data, we apply the data mining technology to discover the statistical characteristics and the potential association of fraud activities, and combine the techniques of device fingerprint and biological probe to construct the characteristic matrix and mathematical model. The appropriate machine learning algorithm is used to train and test the data set so as to determine the risk threshold and rule weight so as to predict the risk users and realize the real-time control of risk behavior. By means of device tracking identification, agent detection, IP geographic risk identification, registration frequency detection and so on, all kinds of abnormal behaviors such as spam registration and account theft can be fully recognized in real time and accurately.Accuracy, so as to better protect the safety of users.

6. Conclusion

Third-party payment has become an important direction of the current Internet finance. With the continuous innovation and wide application of large-scale data technology, Internet finance is also effective in the application of large-scale data. Big data technology has become a new power for third-party payment business. Big data technology also brings operational risk while promoting third-party payment business development, so it is necessary to take effective measures to minimize its risk. With the in-depth development of the Internet and large-scale data technology and the deep integration with third-party payment services, there may be new risks and, therefore, the third-party payment of operational risk must not beMonitoring, evaluation, prevention and control to maintain it's sustained and healthy development.

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